SITE-SPECIFIC UFP QUALITY ASSURANCE PROJECT PLAN
ALFRED HELLER HEAT TREATMENT SITE
5 WELLINGTON STREET
CLIFTON, PASSAIC COUNTY, NEW YORK

NON-TIME CRITICAL

Prepared By:

Removal Support Team 2
Weston Solutions, Inc.
Northeast Division
Edison, New Jersey 08837

DC No.: RST 2-02-F-2334
TDD No.: TO-0027-0160
EPA Contract No.: EP-W-06-072

March 2013

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ATTACHMENTS

LIST OF ACRONYMS

ADR	Automated Data Review
ANSETS	Analytical Services Tracking System
AOC	Acknowledgment of Completion
ASTM	American Society for Testing and Materials
CEO	Chief Executive Officer
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Laboratory Program
CFM	Contract Financial Manager
CO	Contract Officer
COI	Conflict of Interest
COO	Chief Operations Officer
CRDL	Contract Required Detection Limit
CRTL	Core Response Team Leader
CRQL	Contract Required Quantitation Limit
CQLOSS	Corporate Quality Leadership and Operations Support Services
CWA	Clean Water Act
DCN	Document Control Number
DESA	Division of Environmental Science and Assessment
DI	Deionized Water
DPO	Deputy Project Officer
DQI	Data Quality Indicator
DQO	Data Quality Objective
EM	Equipment Manager
EDD	Electronic Data deliverable
ENVL	Environmental Unit Leader
EPA	Environmental Protection Agency
ERT	Environmental Response Team
FASTAC	Field and Analytical Services Teaming Advisory Committee
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/Mass Spectrometry
HASP	Health and Safety Plan
HRS	Hazard Ranking System
HSO	Health and Safety Officer
ITM	Information Technology Manager
LEL	Lower Explosive Limit
MSA	Mine Safety Appliances
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NELAC	National Environmental Laboratory Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response

LIST OF ACRONYMS - Concluded

PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability, Sensitivity
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PIO	Public Information Officer
PM	Program Manager
PO	Project Officer
PRP	Potentially Responsible Party
PT	Proficiency Testing
QA	Quality Assurance
QAL	Quality Assurance Leader
QAPP	Quality Assurance Project Plan
QMP	Quality Management Plan
QA/QC	Quality Assurance/Quality Control
QC	Quality Control
RC	Readiness Coordinator
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
RSCC	Regional Sample Control Coordinator
RST	Removal Support Team
SARA	Superfund Amendments and Reauthorization Act
SEDD	Staged Electronic Data Deliverable
SOP	Standard Operating Practice
SOW	Statement of Work
SPM	Site Project Manager
START	Superfund Technical Assessment and Response Team
STR	Sampling Trip Report
TAL	Target Analyte List
TCL	Total Compound List
TDD	Technical Direction Document
TDL	Technical Direction Letter
TO	Task Order
TQM	Total Quality Management
TSCA	Toxic Substances Control Act
UFP	Uniform Federal Policy
VOA	Volatile Organic Analysis

CROSSWALK

The following table provides a "cross-walk" between the QAPP elements outlined in the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP Manual), the necessary information, and the location of the information within the text document and corresponding QAPP Worksheet. Any QAPP elements and required information that are not applicable to the project are circled.

QAPP Element(s) and Corresponding Section(s) of UFP-QAPP Manual	Required Information	Crosswalk to QAPP Section	Crosswalk to QAPP Worksheet No.
Project Management and Objectives			
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2.2 Document Format and Table of Contents 2.2.1 Document Control Format 2.2.2 Document Control Numbering System 2.2.3 Table of Contents 2.2.4 QAPP Identifying Information	- Table of Contents - QAPP Identifying Information	TOC Approval Page	2
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2.5 Project Planning/Problem Definition 2.5.1 Project Planning (Scoping) 2.5.2 Problem Definition, Site History, and Background	- Project Planning Session Documentation (including Data Needs tables) - Project Scoping Session Participants Sheet - Problem Definition, Site History, and Background - Site Maps (historical and present)	1	9 10
2.6 Project Quality Objectives and Measurement Performance Criteria 2.6.1 Development of Project Quality Objectives Using the Systematic Planning Process 2.6.2 Measurement Performance Criteria	- Site-Specific PQOs - Measurement Performance Criteria	3	11 12

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Measurement/Data Acquisition			
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3.2 Analytical Tasks 3.2.1 Analytical SOPs 3.2.2 Analytical Instrument Calibration Procedures 3.2.3 Analytical Instrument and Equipment Maintenance, Testing, and Inspection Procedures 3.2.4 Analytical Supply Inspection and Acceptance Procedures	- Analytical SOPs - Analytical SOP References - Analytical Instrument Calibration - Analytical Instrument and Equipment Maintenance, Testing, and Inspection	6	23 24 25
3.3 Sample Collection Documentation, Handling, Tracking, and Custody Procedures 3.3.1 Sample Collection Documentation 3.3.2 Sample Handling and Tracking System 3.3.3 Sample Custody	- Sample Collection Documentation Handling, Tracking, and Custody SOPs - Sample Container Identification - Sample Handling Flow Diagram - Example Chain-of-Custody Form and Seal	7	27 26

QAPP Worksheet #1: Title and Approval Page

Title: Site-Specific Quality Assurance Project Plan
Site Name/Project Name: Alfred Heller Heat Treating
Site Location: 5 Wellington Street, Clifton, New Jersey
Revision Number: 00
Revision Date: NA

Weston Solutions, Inc.
Lead Organization

Peter Lisichenko
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Email: Peter.Lisichenko@westonsolutions.com

Preparer's Name and Organizational Affiliation

March 7, 2013
Preparation Date (Day/Month/Year)

Site Project Manager: _____
Signature

Peter Lisichenko/Weston Solutions, Inc.
Printed Name/Organization/Date

QA Officer/Technical Reviewer: _____
Signature

Smita Sumbaly/Weston Solutions, Inc.
Printed Name/Organization/Date

EPA, Region II On-Scene Coordinator (OSC): _____
Signature

Cris D'Onofrio/EPA, Region II
Printed Name/Organization/Date

EPA, Region II Quality Assurance Officer (QAO): _____
Signature

Printed Name/Organization/Date

Document Control Number: RST 2-02-2334

QAPP Worksheet #2: QAPP Identifying Information

Site Name/Project Name: Alfred Heller Heat Treating
Site Location: 5 Wellington Street, Clifton, Pasaic County, New York
Operable Unit: 00
Title: Quality Assurance Project Plan
Revision Number: 00
Revision Date: None

1. **Identify guidance used to prepare QAPP:** Uniform Federal Policy for Quality Assurance Project Plans. Refer to EPA Methods and DESA SOPs.
2. **Identify regulatory program:** EPA, Region II
3. **Identify approval entity:** EPA, Region II
4. **Indicate whether the QAPP is a generic or a Site-specific QAPP.**
5. **List dates of scoping sessions that were held:** February 26, 2013
6. **List dates and titles of QAPP documents written for previous site work, if applicable:**

   AlfredHeller QAPP; DCN RST 2-02-F-1202

   AlfredHeller QAPP; DCN RST 2-02-F-1222
7. **List organizational partners (stakeholders) and connection with lead organization:** None
8. **List data users:**
   EPA, Region II (See Worksheet # 4 for individuals)
9. **If any required QAPP elements and required information are not applicable to the project, then provide an explanation for their exclusion below:**
   Worksheet # 22 not applicable because no field equipment will be used during sampling event.
10. **Document Control Number:**
    RST 2-02-2334

QAPP Worksheet #3: Distribution List

[List those entities to which copies of the approved QAPP, subsequent QAPP revisions, addenda, and amendments are sent]

QAPP Recipient	Title	Organization	Telephone Number	Fax Number	E-mail Address	Document Control Number
Cris D'Onofrio	EPA, On-Scene Coordinator	EPA, Region II	(732)-321-4345	(732) 906-6182	Donofrio.Cris@epa.gov	RST 2-02-2334
Aleksandra Mallon	Site Project Manager, RST 2	Weston Solutions, Inc.	(732) 570-4997	(732) 225-7037	Aleksandra.Mallon@westonsolutions.com	RST 2-02-2334
Smita Sumbaly	QA Officer, RST 2	Weston Solutions, Inc.	(732) 585-4410	(732) 225-7037	S.Sumbaly@westonsolutions. com	RST 2-02-2334
Site TDD File	RST 2 Site TDD File	Weston Solutions, Inc.	-	-	-	RST 2-02-2334

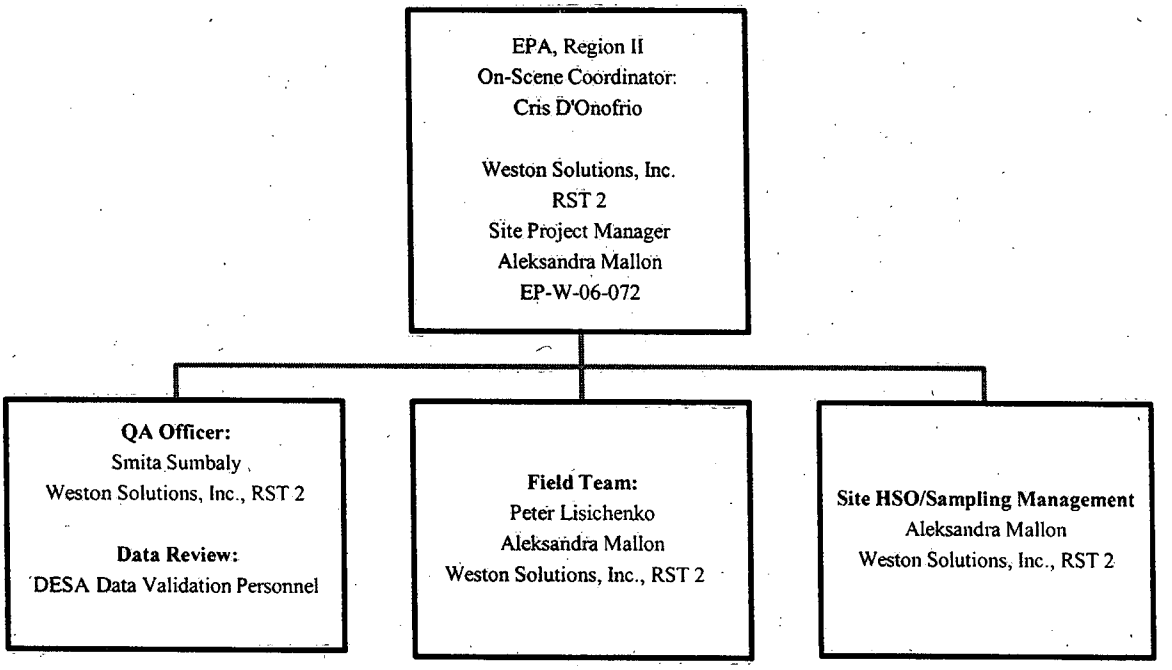
QAPP Worksheet #4: Project Personnel Sign-Off Sheet

Organization: Weston Solutions, Inc.

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read
Cris D'Onofrio	EPA, Region II, On-Scene Coordinator	(908) 420-4475		
Aleksandra Mallon	Site Project Manager, RST 2	(732) 570-4997	A. Mallon	7/29/13
Timothy Benton	HSO, RST 2	(732) 585-4425		
Smita Sumbaly	QA Officer, RST 2	(732) 585-4410	Smita Sumbaly	7/29/13
Peter Lisichenko	Field Personnel, RST 2	(603) 512-4350		7/29/13

QAPP Worksheet #5: Project Organizational Chart

Identify reporting relationship between all organizations involved in the project, including the lead organization and all contractor and subcontractor organizations. Identify the organizations providing field sampling, on-site and off-site analysis, and data review services, including the names and telephone numbers of all project managers, project team members, and/or project contacts for each organization.



Acronyms:

SPM: Site Project Manager
HSO: Health & Safety Officer

QAPP Worksheet #6: Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure
Point of contact with EPA OSC	Site Project Manager, Weston Solutions, Inc., RST 2	Aleksandra Mallon, SPM	732-570-4997	All technical, QA and decision-making matters in regard to the project (verbal, written or electronic)
Adjustments to QAPP	Site Project Manager, Weston Solutions, Inc., RST 2	Aleksandra Mallon, SPM	732-570-4997	QAPP approval dialogue
Health and Safety On-Site Meeting	Site Project Manager, Weston Solutions, Inc., RST 2	Aleksandra Mallon, SPM	732-570-4997	Explain/review Site hazards, personnel protective equipment and local hospital.

OSC: On-Scene Coordinator

QAPP Worksheet #7: Personnel Responsibilities and Qualifications Table

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
Cris D'Onofrio	EPA On-Scene Coordinator	EPA, Region II	All project coordination, direction and decision making.	NA
Peter Lischenko	Group Leader, RST 2	Weston Solutions, Inc.	Implementing and executing the technical, QA and health and safety during sampling event and sample management.	8 years of field experience
Aleksandra Mallon	Field Team, RST 2	Weston Solutions, Inc.	Sample Collection/Sample Management	2 years of field experience

*All RST 2 members, including subcontractor's resumes are in possessions of RST 2 Program Manager, EPA Project Officer and Contracting officers.

QAPP Worksheet #8: Special Personnel Training Requirements Table

Project Function	Specialized Training By Title or Description of Course	Training Provider	Training Date	Personnel / Groups Receiving Training	Personnel Titles / Organizational Affiliation	Location of Training Records / Certificates[1]
[Specify location of training records and certificates for samplers]						
QAPP Training	This training is presented to all RST 2 personnel to introduce the provisions, requirements, and responsibilities detailed in the UFP QAPP. The training presents the relationship between the site-specific QA Project Plans (QAPPs), SOPs, work plans, and the Generic QAPP. QAPP refresher training will be presented to all employees following a major QAPP revision.	Weston Solutions, Inc., QAO	As needed	All RST 2 field personnel upon initial employment and as refresher training	Weston Solutions, Inc.	Weston Solutions, Inc., EHS Database
Health and Safety Training	Health and safety training will be provided to ensure compliance with Occupational Safety and Health Administration (OSHA) as established in 29 CFR 1910.120.	Weston Solutions, Inc., HSO	Yearly at a minimum	All Employees upon initial employment and as refresher training every year	Weston Solutions, Inc.	Weston Solutions, Inc., EHS Database
Others	FORMS II Lite, Scribe®, ICS 100 and 200, and Air Monitoring Equipment Trainings provided to all employees	Weston Solutions, Inc., QAO/Group Leader's	Upon initial employment and as needed			
	Dangerous Goods Shipping	Weston Solutions, Inc., HSO	Every 2 years			

All team members are trained in the concepts and procedures in recognizing opportunities for continual improvement, and the approaches required to improve procedures while maintaining conformance with legal, technical, and contractual obligations.

*All RST 2 members, including subcontractor's certifications are in possessions of RST 2 HSO.

QAPP Worksheet #9: Project Scoping Session Participants Sheet

Site Name/Project Name: Alfred Heller Heat Treating Site
Site Location: 5 Wellington Street, Clifton, Passaic County, New Jersey
Operable Unit: 00
Date of Session: February 26, 2013
Scoping Session Purpose: To discuss dates and logistics for Spring Sampling event

Name	Title	Affiliation	Phone #	E-mail Address	*Project Role
Cris D'Onofrio	EPA OSC	EPA, Region II	732-321-4345	Donofrio.Cris@epa.gov	OSC
Aleksandra Mallon	Project Scientist	Weston Solutions, Inc.	732-570-4997	Aleksandra.Mallon@Westonsolutions.com	Project Manager

Comments/Decisions: Sampling will be conducted of the week of March 11, 2012. RST 2 will work with a sampling team from DESA to collect a single stormwater sample from a catchbasin. All samples will be sent to DESA laboratory for TCL-VOCs analysis. DESA is capable of obtaining a detection limit of 0.5 ug/L.

Action Items: OSC contacted laboratory directly and set-up analytical services.

Consensus Decisions: Analytical data for the well water samples will be used to confirm the presence or absence of VOCs in the catchbasin water.

QAPP Worksheet #10: Problem Definition

PROBLEM DEFINITION

The sampling event scheduled for March 11, 2013 will involve the collection of one catchbasin water sample from one location to verify the presence of VOCs. The sample will be analyzed for TCL-VOCs.

SITE HISTORY/CONDITIONS

The Alfred Heller Heat Treating Site (the Site) is located at 5 Wellington Street in Clifton, Passaic County, New Jersey. The site is located in a densely populated, mixed residential and light industrial area of Clifton. There are four schools located within less than a one half mile radius of the Site. The Passaic River is less than three quarters of a mile to the east of the Site.

The Site is a former heat treating and zinc plating/conversion coating facility. The Site is approximately four acres in size and contains six adjacent buildings within an approximate floor space of 75,000 square feet. The U.S. Environmental Protection Agency (EPA) conducted an Emergency Removal Action at the Site in 2009 that included the cleaning and dismantling of plating lines, disposal/recycling of approximately 600 drums of chemical wastes, and waste removal/cleaning of all tanks, vats, floor pits and sumps.

In May, 2011, EPA initiated a groundwater and soil investigation to determine the nature and extent of trichloroethylene (TCE) contamination that resulted from Alfred Heller degreasing operations. Additional investigative work was done in January 2012. The investigations included monitoring well installations (on and off-site), soil gas sampling, on-site soil sampling and limited vapor intrusion sampling. Results of the investigations indicated that a TCE plume is migrating to the east of the Site and that potential for vapor intrusion exists for homes in that area. EPA had also initiated an on-site soil sampling assessment in November 2009. Soil samples were collected from beneath the concrete floor from sumps and other suspected contaminated areas. Soil vapor samples were also collected from the sub-slab.

In February 2013, EPA conducted a vapor intrusion study of the homes and a business to the east of the Site. The area included a square block between East 11th Street, Merselis Avenue, Trenton Avenue, and Howd Avenue and at the plastics manufacturing facility at the corner of Trenton Avenue and State Route 46. Sub-slab air samples were collected at 11 homes homes within this area, and at the manufacturing facility. Samples collected were analyzed for volatile organic compound analysis (VOC). In addition to the sub-slab air samples, an aqueous sample was collected from a subsurface stream that traverses this area and analyzed for VOCs.

QAPP Worksheet #10: Problem Definition (continued)

The EPA Removal Assessment of the Site is scheduled to begin the week of February 25, 2013, and be complete in approximately 8 days. As part of the Removal Assessment RST 2 is tasked with the collection of a single catchbasin water sample to determine the presence of TCE; the sample will be analyzed for TCL- VOCs.

PROJECT DECISION STATEMENTS

If the TCE is detected in the catchbasin, further investigation will be required for point source contamination and additional analysis may be required.

QAPP Worksheet # 11: Project Quality Objectives/Systematic Planning Process Statement

Overall project objectives include: Sampling will be conducted by RST 2 to confirm the presence of TCE.

Who will use the data? Data will be used by EPA, Region II OSC.

What will the data be used for? Data from this sampling event will be used to assess potential risk to human health and to the environment.

What types of data are needed?
Sampling type and matrix: Potable Water
Type of Data: Definitive data
Analytical Techniques: Field screening, off-site laboratory analyses
Parameters: TCL-VOCs
Type of sampling equipments: sample jars
Access Agreement: EPA OSC has received signed access agreement.
Sampling locations: On-site

How much data are needed? A single catchbasin water sample to be analyzed for TCL-VOCs.

How "good" does the data need to be in order to support the environmental decision? Sampling/analytical measurement performance criteria for PARCC parameters will be established. Refer to Worksheet#12, criteria for performance measurement for screening and definitive data.

Where, when, and how should the data be collected/generated? Catchbasin located at the corner of 11th Street and Trenton Avenue is to be collected via bailer. The sampling event is scheduled to be conducted from March 11, 2013.

Who will collect and generate the data? The samples will be collected by Weston Solutions, Inc., and analyzed by DESA laboratory will also be validated by DESA data validation personnel.

How will the data be reported? All data will be reported by the assigned laboratories (Preliminary, Electronics, and Hard Copy format). The Site Project Manager will provide a Sampling Trip Report, Status Reports, Maps/Figures, Analytical Report, and Data Validation Report to the EPA OSC.

How will the data be archived? Electronic data deliverables will be archived in the Scribe database. CLP and non-CLP data will be archived in EPA's document control room.

QAPP Worksheet #12: Measurement Performance Criteria Table

Complete this worksheet for each matrix, analytical group, and concentration level. Identify the data quality indicators (DQI), measurement performance criteria (MPC) and QC sample and/or activity used to assess the measurement performance for both the sampling and analytical measurement systems. Use additional worksheets if necessary. If MPC for specific DQI vary within an analytical parameter, i.e., MPC are analyte-specific, then provide analyte-specific MPC on an additional worksheet.

Matrix	Aqueous
Analytical Group	TCL VOCs
Concentration Level	Trace/Low level (ug/L)

Sampling Procedure[1]	Analytical Method/SOP[2]	Data Quality Indicators (DQIs)	Measurement Performance Criteria	QC Sample and/or Activity Used to Assess Measurement Performance	QC Sample Assesses Error for Sampling (S), Analytical (A) or both (S&A)
Potable Water Sampling Procedures/General Field Sampling Guidelines	EPA Method C-89	Precision	% RPD < 20	LCS Duplicate	A
		Accuracy	Average Recovery (80-120%)		
		Accuracy	+/- 40% from the initial/ continuing calibration	Internal standards	A
		Accuracy	Limits 70%-130%	Matrix spike	A
		Accuracy	Limits 80%-120%	Surrogate Compounds	A
		Accuracy	< RL	Method Blank	A

[1]Reference number from QAPP Worksheet #21.
[2]Reference number from QAPP Worksheet #23.

QAPP Worksheet #13: Secondary Data Criteria and Limitations Table

Any data needed for project implementation or decision making that are obtained from non-direct measurement sources such as computer databases, background information, technologies and methods, environmental indicator data, publications, photographs, topographical maps, literature files and historical data bases will be compared to the DQOs for the project to determine the acceptability of the data. Thus, for example, analytical data from historical surveys will be evaluated to determine whether they satisfy the validation criteria for the project and to determine whether sufficient data was provided to allow an appropriate validation to be done. If not, then a decision to conduct additional sampling for the site may be necessary.

Secondary Data	Data Source (Originating Organization, Report Title, and Date)	Data Generator(s) (Originating Org., Data Types, Data Generation/ Collection Dates)	How Data May Be Used (if deemed usable during data assessment stage)	Limitations on Data Use
Previous Investigation Sampling Results	Data Reports, Sampling Trip Reports delivered to EPA.	Aleksandra Mallon RST 2, SPM. Semi-Annual Sampling from 2012-Present	Data used to confirm proper installation of POET system	Samples can only be collected if prior approval is obtained by resident.

QAPP Worksheet #14: Summary of Project Tasks

Sampling Tasks:

RST 2 is tasked with the collection of one water sample to be collectied from the catchbasin located at the intersection of Trenton Avenue and 11th Street in Clifton, New Jersey. The sample will be submitted to the DESA laboratory for trace/low-level TCL VOC. The samples will be collected for definitive data QA Objective. Field duplicate samples will be collected at a rate of one per every 20 field samples and an MS/MSD samples will be required for TCL VOC analysis.

Analysis Tasks:

Aqueous - TCL VOC – EPA Method 624, DESA SOP C-89

Quality Control Tasks:

Water samples will be collected for Definitive Data QA Objective. Field duplicates and MS/MSD will be collected at a rate of one per 20 field samples.

Data Management Tasks:

Activities under this project will be reported in status and trip reports and other deliverables (e.g., analytical reports, final reports) described herein. Activities will also be summarized in appropriate format for inclusion in monthly and annual reports.

The following deliverables will be provided under this project:

Trip Report: A trip report will be prepared to provide a detailed accounting of what occurred during each sampling mobilization. The trip report will be prepared within two weeks of the last day of each sampling mobilization. Information will be provided on time of major events, dates, and personnel on-site (including affiliations).

Maps/Figures: Maps depicting site layout, contaminant source areas, and sample locations will be included in the trip report, as appropriate.

Analytical Report: An analytical report will be prepared for samples analyzed under this plan. Information regarding the analytical methods or procedures employed, sample results, QA/QC results, chain-of-custody documentation, laboratory correspondence, and raw data will be provided within this deliverable.

QAPP Worksheet #14: Summary of Project Tasks (Continued)

Data Review: A review of the data generated under this plan will be undertaken. The assessment of data acceptability or usability will be provided separately, or as part of the analytical report.

Documentation and Records:

All sample documents will be completed legibly, in ink. Any corrections or revisions will be made by lining through the incorrect entry and by initialing the error.

Field Logbook: The field logbook is essentially a descriptive notebook detailing site activities and observations so that an accurate account of field procedures can be reconstructed in the writer's absence. Field logbook will be bound and paginated. All entries will be dated and signed by the individuals making the entries, and should include (at a minimum) the following

1. Site name and project number
2. Name(s) of personnel on-site
3. Dates and times of all entries (military time preferred)
4. Descriptions of all site activities, site entry and exit times
5. Noteworthy events and discussions
6. Weather conditions
7. Site observations
8. Sample and sample location identification and description*
9. Subcontractor information and names of on-site personnel
10. Date and time of sample collections, along with chain of custody information
11. Record of photographs
12. Site sketches

* The description of the sample location will be noted in such a manner as to allow the reader to reproduce the location in the field at a later date.

Sample Labels: Sample labels will clearly identify the particular sample, and should include the following:

1. Site/project number.
2. Sample identification number.
3. Sample collection date and time.
4. Designation of sample (grab or composite).
5. Sample preservation.
6. Analytical parameters.
7. Name of sampler.

Sample labels will be written in indelible ink and securely affixed to the sample container. Tie-on labels can be used if properly secured.

QAPP Worksheet #14: Summary of Project Tasks (Concluded)

Custody Seals: Custody seals demonstrate that a sample container has not been tampered with or opened. The individual in possession of the sample(s) will sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The name of this individual, along with a description of the sample packaging, will be noted in the field logbook.

Assessment/Audit Tasks: No performance audit of field operations is anticipated at this time. If conducted, performance and system audit will be in accordance with the project plan.

Data Review Tasks: All TCL VOCs data will be validated by EPA Region 2 DESA/HWSB/HWSS in accordance with latest SOW. (See Worksheet No. 36)

Laboratory analytical results will be assessed by the data reviewer for compliance with required precision, accuracy, completeness, representativeness, and sensitivity.

QAPP Worksheet #15
Reference Limits and Evaluation Table

Matrix: Aqueous
Analytical Group: Volatile Organic Compounds
Concentration Level Trace

Analyte	CAS Number	Project (PRP) Quantitation Limit	Method CRQLs	Achievable Laboratory (DESA) Limit	
				MDLs µg/L	RLs
Dichlorodifluoromethane	75-71-8	0.5ug/l	0.5ug/l	0.11	0.5ug/l
Chloromethane	74-87-3	0.5ug/l	0.5ug/l	0.07	0.5ug/l
Vinyl Chloride	75-01-4	0.5ug/l	0.5ug/l	0.12	0.5ug/l
Bromomethane	74-83-9	0.5ug/l	0.5ug/l	0.14	0.5ug/l
Chloroethane	75-00-3	0.5ug/l	0.5ug/l	0.14	0.5ug/l
Trichlorofluoromethane	75-69-4	0.5ug/l	0.5ug/l	0.11	0.5ug/l
1,1-Dichloroethene	75-35-4	0.5ug/l	0.5ug/l	0.10	0.5ug/l
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.5ug/l	0.5ug/l		0.5ug/l
Carbon Disulfide	75-15-0	0.5ug/l	0.5ug/l	0.10	0.5ug/l
Acetone	67-64-1	0.5ug/l	5.0ug/l	0.36	5.0ug/l
Methyl Acetate	79-20-9	0.5ug/l	0.5ug/l		0.5ug/l
Methylene Chloride	75-09-2	0.5ug/l	0.5ug/l	0.18	0.5ug/l
trans-1,2-Dichloroethene	156-60-5	0.5ug/l	0.5ug/l	0.09	0.5ug/l
cis-1,2-Dichloroethene	156-59-2	0.5ug/l	0.5ug/l	0.06	0.5ug/l
Methyl tert-Butyl Ether	1634-04-4	0.5ug/l	0.5ug/l	0.03	0.5ug/l
1,1-Dichloroethane	75-34-3	0.5ug/l	0.5ug/l	0.08	0.5ug/l
2-Butanone	78-93-3	0.5ug/l	5.0ug/l	0.21	5.0ug/l
Chloroform	67-66-3	0.5ug/l	0.5ug/l	0.07	0.5ug/l
1,2-Dichloroethane	107-06-2	0.5ug/l	0.5ug/l	0.09	0.5ug/l
1,1,1-Trichloroethane	71-55-6	0.5ug/l	0.5ug/l	0.09	0.5ug/l
Cyclohexane	110-82-7	0.5ug/l	0.5ug/l		0.5ug/l
Carbon Tetrachloride	56-23-5	0.5ug/l	0.5ug/l	0.10	0.5ug/l
Benzene	71-43-2	0.5ug/l	0.5ug/l	0.07	0.5ug/l
Trichloroethene	79-01-6	0.5ug/l	0.5ug/l	0.08	0.5ug/l
Methylcyclohexane	108-87-2	0.5ug/l	0.5ug/l		0.5ug/l
1,2-Dichloropropane	78-87-5	0.5ug/l	0.5ug/l	0.04	0.5ug/l
Bromodichloromethane	75-27-4	0.5ug/l	0.5ug/l	0.06	0.5ug/l
cis-1,3-Dichloropropene	10061-01-5	0.5ug/l	0.5ug/l	0.05	0.5ug/l
trans-1,3-Dichloropropene	10061-02-6	0.5ug/l	0.5ug/l	0.04	0.5ug/l
1,1,2-Trichloroethane	79-00-5	0.5ug/l	0.5ug/l	0.08	0.5ug/l
Dibromochloromethane	124-48-1	0.5ug/l	0.5ug/l	0.03	0.5ug/l
4-Methyl-2-Pentanone	108-10-1	0.5ug/l	0.5ug/l	0.10	0.5ug/l
Toluene	108-88-3	0.5ug/l	0.5ug/l	0.08	0.5ug/l
1,2-Dibromoethane	106-93-4	0.5ug/l	0.5ug/l	0.04	0.5ug/l
Chlorobenzene	108-90-7	0.5ug/l	0.5ug/l	0.06	0.5ug/l
Tetrachloroethene	127-18-4	0.5ug/l	0.5ug/l	0.09	0.5ug/l

QAPP Worksheet #15
Reference Limits and Evaluation Table (continued)

Analyte	CAS Number	Project (PRP) Quantitation Limit	Method CRQLs	Achievable Laboratory (DESA) Limit	
				MDLs µg/L	RLs
2-Hexanone	591-78-6	0.5ug/l	5.0ug/l	0.11	5.0ug/l
Ethylbenzene	100-41-4	0.5ug/l	0.5ug/l	0.06	0.5ug/l
m,p-Xylene	179601-23-1	0.5ug/l	0.5ug/l	0.13	0.5ug/l
o-Xylene	95-47-6	0.5ug/l	0.5ug/l	0.05	0.5ug/l
Styrene	100-42-5	0.5ug/l	0.5ug/l	0.03	0.5ug/l
Bromoform	75-25-2	0.5ug/l	0.5ug/l	0.07	0.5ug/l
Isopropylbenzene	98-82-8	0.5ug/l	0.5ug/l	0.06	0.5ug/l
1,1,2,2-Tetrachloroethane	79-34-5	0.5ug/l	0.5ug/l	0.05	0.5ug/l
1,3-Dichlorobenzene	541-73-1	0.5ug/l	0.5ug/l	0.05	0.5ug/l
1,4-Dichlorobenzene	106-46-7	0.5ug/l	0.5ug/l	0.03	0.5ug/l
1,2-Dichlorobenzene	95-50-1	0.5ug/l	0.5ug/l	0.04	0.5ug/l
1,2-Dibromo-3-Chloropropane	96-12-8	0.5ug/l	0.5ug/l	0.18	0.5ug/l
1,2,4-Trichlorobenzene	120-82-1	0.5ug/l	0.5ug/l	0.06	0.5ug/l
1,2,3-Trichlorobenzene	87-61-6	0.5ug/l	0.5ug/l	0.05	0.5ug/l
Bromochloromethane	74-97-5	0.5ug/l	0.5ug/l	0.10	0.5ug/l

QAPP Worksheet #16: Project Schedule/Timeline Table

Activities	Organization	Dates (MM/DD/YY)		Deliverable	Deliverable Due Date
		Anticipated Date(s) of Initiation	Anticipated Date of Completion		
Preparation of QAPP	RST 2 Contractor Site Project Manager	Prior to sampling date	2/19/2013	QAPP	2/22/2013
Review of QAPP	RST 2 Contractor QAO and/or Group Leader	Prior to sampling date	2/22/2013	Approved QAPP	3/5/2013
Preparation of Health and Safety Plan	RST 2 Contractor Site Project Manager	Prior to sampling date	8/28/2012	HASP	8/28/2012
Procurement of Field Equipment	RST 2 Contractor Site Project Manager and/or Equipment Officer	Prior to sampling date	3/1/2013	N/A	NA
Laboratory Request	RST 2 Contractor Site Project Manager and/or QAO	Prior to sampling date	3/7/2013	CLP Request Form	3/7/2013
Field Reconnaissance/Access	RST 2 Contractor Site Project Manager; or EPA Region 2 OSC	NA	NA	N/A	N/A
Collection of Field Samples	RST 2 Contractor Site Project Manager	3/11/2013	3/11/2013	N/A	N/A
Laboratory Package Received	EPA Region 2 DESA	4/1/2013	4/1/2013	Preliminary Data	4/1/2013
Validation of Laboratory Results	EPA Region 2 DESA	4/15/2013	4/15/2013	Final Report	4/15/2013
Data Evaluation/ Preparation of Final Report	RST 2 Contractor Site Project Manager	5/3/2013	5/3/2013	Final Report	5/3/2013

QAPP Worksheet #17: Sampling Design and Rationale

Weston Solutions, Inc. will collect approximately one aqueous sample, one field duplicate, and one trip blank from one location, for Volatile Organic Compound analysis.

The sample was collected via bailer from the catchbasin and directly transferred to VOA viles for delivery to lab.

This sampling design is based on information currently available and may be modified onsite in light of field-screening results and other acquired information.

The following laboratories will provide the analyses indicated:

Lab Name/Location	Sample Type	Parameters
DESA USEPA Region 2 2890 Woodbridge Ave. Bldg. 209, MS-230 Edison, NJ 08837 Tel.: (732) 906-6886	Aqueous	TCL VOCs

Refer to Worksheet #20 for QA/QC samples, sampling methods and SOP.

QAPP Worksheet #18: Sampling Locations and Methods/SOP Requirements Table

Matrix	Sampling Location(s)	Units	Analytical Group(s)	Concentration Level	No. of Samples (identify field duplicates)	Sampling SOP Reference	Rationale for Sampling Location
Aqueous	1 location	ug/L	TCL VOCs	Low	1/20 samples per matrix	SOP# 2007	Determine presence of TCE

QAPP Worksheet #19: Analytical SOP Requirements Table

Matrix	No. of Samples	Analytical Group [Lab Assignment]	Concentration Level	Analytical and Preparation Method/SOP Reference	Sample Volume	Containers (number, size, and type)	Holding Time/ Preservation Requirements
Aqueous	1	TCL VOCs	Trace/Low	EPA 624, DESA SOP C-89	120 ml	3 - 40 ml viles with Teflon lined septum	7 days/ 1:1 Hcl to pH < 2; Cool to 4°C

[1]Specify the appropriate reference letter or number from the Analytical SOP References table (Worksheet #23).

QAPP Worksheet #20: Field Quality Control Sample Summary Table

Matrix	Analytical Group	Concentration Level	Analytical and Preparation SOP Reference	No. of Sampling Locations	No. of Field Duplicate Pairs	No. of Extra Volume Laboratory QC (e.g., MS/MSD) Samples[1]	No. of Rinsate Blanks	No. of Trip. Blanks	No. of PE Samples
Aqueous	TCL VOCs	Trace/Low	EPA 624, DESA SOP C-89	1	1	NR	NR	1	NR

NR – not required

QAPP Worksheet #21: Project Sampling SOP References Table

Reference Number	Title, Revision Date and/or Number	Originating Organization	Equipment Type	Modified for Project Work? (Y/N)	Comments
SOP # 2007	Groundwater Sampling (all media); Rev. 0.0 January 1995	EPA - ERT	Sample preservation, containers, handling, and storage	N	N

QAPP Worksheet #23

Analytical SOP References Table

Reference Number	Title, Revision Date, and/or Number	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? (Y/N)
EPA 624-, DESA SOP C-89	Analysis of Volatile Organic Compounds in Aqueous, Soil/Sediment and Waste Oil/Waste Organic Solvents Samples by Purge and Trap GC/MS, Rev. 2.0, 3/07	Definite	TCL Volatiles	GC/MS	DESA LAB	N

QAPP Worksheet #24

Analytical Instrument Calibration Table

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference
GC/MS	See SOP C-89	See SOP C-89	See SOP C-89	See SOP C-89	Assigned Lab personnel	See SOP C-89

QAPP Worksheet #25: Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table

Instrument/ Equipment	Maintenance Activity	Testing/Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference[1]
GC/MS	See LQMP, G-10, G-11, G-12, G-19	See LQMP, G-10, G-11, G-12, G-19	See LQMP, G-10, G-11, G-12, G-19	See LQMP, G-10, G-11, G-12, G-19	See LQMP, G-10, G-11, G-12, G-19	See LQMP, G-10, G-11, G-12, G-19	See LQMP, G-10, G-11, G-12, G-19

[1] Specify the appropriate letter or number form the Analytical SOP References table (Worksheet #23)

QAPP Worksheet #26: Sample Handling System

SAMPLE COLLECTION, PACKAGING, AND SHIPMENT
Sample Collection (Personnel/Organization): RST 2 Site Project Manager, Weston Solutions, Inc., Region II
Sample Packaging (Personnel/Organization): RST 2 Site Project Manager and sampling team members, Weston Solutions, Inc., Region II
Coordination of Shipment (Personnel/Organization): RST 2 Site Project Manager, sampling team members, Weston Solutions, Inc., Region II
Type of Shipment/Carrier: RST 2 Hand-Delivered
SAMPLE RECEIPT AND ANALYSIS
Sample Receipt (Personnel/Organization): EPA DESA LAB
Sample Custody and Storage (Personnel/Organization): EPA DESA LAB
Sample Preparation (Personnel/Organization): EPA DESA LAB
Sample Determinative Analysis (Personnel/Organization): EPA DESA LAB
SAMPLE ARCHIVING
Field Sample Storage (No. of days from sample collection): Samples will be hand-delivered to the DESA laboratory within 24 hours (1day) after last sample is collected.
Sample Extract/Digestate Storage (No. of days from extraction/digestion): As per analytical methodology; see Worksheet #19
SAMPLE DISPOSAL
Personnel/Organization: Sample Technicians, EPA DESA Laboratory
Number of Days from Analysis: Up to 60 days until analysis and QA/QC checks are completed; as per analytical methodology; see Worksheet #19.

QAPP Worksheet #27: Sample Custody Requirements

Sample Identification Procedures: The sample to be collected by Region II RST 2 will be identified by the property where it was collected, the matrix of the sample collected, the location, and the sample number. Properties were labeled on a numerical basis i.e. P001, P002, etc. The matrix identifier for catchbasin water is CB and the last number will represent the sample number collected from each location. Duplicate samples will be identified in the same manner but will be the next sequential sample number. Trip blank samples will be identified as TB-{DATE}:

e.g. P014-CB001-001-01 - Property- P014 – Catchbasin – CB001 - Sample 001.

Location of the sample collected will be recorded in the project database and site logbook. A duplicate sample will be identified in the same manner as other samples and will be distinguished and documented in the field logbook.

Field Sample Custody Procedures (sample collection, packaging, shipment, and delivery to laboratory): Each sample will be individually identified and labeled after collection, then sealed with custody seals and enclosed in a plastic cooler. The sample information will be recorded on chain-of custody (COC) forms, and the samples shipped to the appropriate laboratory via overnight delivery service or courier. Chain-of-custody records must be prepared in Scribe to accompany samples from the time of collection and throughout the shipping process. Each individual in possession of the samples must sign and date the sample COC Record. The chain-of-custody record will be considered completed upon receipt at the laboratory. A traffic report and chain-of-custody record will be maintained from the time the sample is taken to its final deposition. Every transfer of custody must be noted and signed for, and a copy of this record kept by each individual who has signed. When samples are not under direct control of the individual responsible for them, they must be stored in a locked container sealed with a custody seal. Specific information regarding custody of the samples projected to be collected on the weekend will be noted in the field logbook. The chain-of-custody record should include (at minimum) the following: 1) Sample identification number; 2) Sample information; 3) Sample location; 4) Sample date; 5) Sample Time; 6) Sample Type Matrix; 7) Sample Container Type; 8) Sample Analysis Requested; 9) Name(s) and signature(s) of sampler(s); and 10) Signature(s) of any individual(s) with custody of samples.

A separate chain-of-custody form must accompany each cooler for each daily shipment. The chain-of-custody form must address all samples in that cooler, but not address samples in any other cooler. This practice maintains the chain-of-custody for all samples in case of mis-shipment.

QAPP Worksheet #27: Sample Custody Requirements – (continued)

Laboratory Sample Custody Procedures (receipt of samples, archiving, and disposal): A sample custodian at the laboratory will accept custody of the shipped samples, and check them for discrepancies, proper preservation, integrity, etc. If noted, issues will be forwarded to the laboratory manager for corrective action. The sample custodian will relinquish custody to the appropriate department for analysis. At this time, no samples will be archived at the laboratory. Disposal of the samples will occur only after analyses and QA/QC checks are completed.

QAPP Worksheet #28: QC Samples Table

Matrix	Aqueous
Analytical Group	VOC
Concentration Level	Trace
Sampling SOP	EPA/ERT SOP No. 2007
Analytical Method/ SOP Reference	C-89 (Ref: EPA 624)
Sampler's Name	RST 2
Field Sampling Organization	Weston Solutions, Inc.
Analytical Organization	USEPA Region 2 Lab
No. of Sample Locations	1

QC Sample:	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria
Tuning	12 hr period	Pass all PBFB tune criteria	Check Instrument Reanalyze, Retune	Lab personnel	Sensitivity	Pass all PBFB tune criteria
Initial Calibration	SOP C-89	% RSD +/- 20% Not more than 10% of total analytes failure	Check Instrument, Reanalyze	Lab personnel	Accuracy/ Precision	% RSD +/- 20% Not more than 10% of total analytes failure
Continuing Calibration Check Standard (Alternate check standard)	1 per analytical batch	Max %D RRF +/- 30% Not more than 10% of total analytes failure	Reanalyze, Qualify data	Lab personnel	Accuracy	Max %D RRF +/- 30% Not more than 10% of total analytes failure
Method Blank	1 per extraction batch	< RL	Investigate source of contamination	Lab personnel	Sensitivity Contamination	< RL
Trip Blank	1 per cooler containing VOC samples	Client Defined	Investigate source of contamination	Lab personnel	Sensitivity Contamination	NS

QAPP Worksheet #28: QC Samples Table (Concluded)

Matrix	Aqueous
Analytical Group	VOC
Concentration Level	Trace
Sampling SOP	EPA/ERT SOP No. 2007
Analytical Method/ SOP Reference	C-89 (Ref: EPA 624)
Sampler's Name	RST 2
Field Sampling Organization	Weston Solutions, Inc.
Analytical Organization	USEPA Region 2 Lab
No. of Sample Locations	1

QC Sample:	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria
LCS/LFB	2 per extraction batch	Limits: Average Recovery 70-130% % RPD < 20	Qualify data unless high recovery and/or Not Detected)	Lab personnel	Accuracy/ Precision	Limits: Average Recovery 70-130% RPD 20%
Laboratory Matrix spikes	1 per extraction batch	Limits 70-130%	Qualify data unless high recovery and/or Not Detected)	Lab personnel	Accuracy	Limits 70-130%
Internal Standards	Each sample, standard, blank	+/-40% from the initial/continuing calibration	Check Instrument Analyse / Qualify data	Lab personnel	Quantitation	+/- 40% from the initial/continuing calibration
Surrogates	Each sample, standard, blank	Limits 80%-120%	Reinject, Qualify data	Lab personnel	Extraction efficiency, Accuracy	Limits 80%-120%

QAPP Worksheet #29: Project Documents and Records Table

Sample Collection Documents and Records	Analysis Documents and Records	Data Assessment Documents and Records	Other
• Site logbooks • COC forms • Field Data Sheets • Photo-document	• Sample receipt logs • Internal and external COC forms • Equipment calibration logs • Sample preparation worksheets/logs • Sample analysis worksheets/run logs • Telephone/email logs • Corrective action documentation	• Data validation reports • Field inspection checklist(s) • Review forms for electronic entry of data into database • Corrective action documentation	None

QAPP Worksheet #30: Analytical Services Table

Matrix	Analytical Group	Concentration Level	Analytical SOP	Data Package Turnaround Time	Laboratory/Organization (Name and Address, Contact Person and Telephone Number)	Backup Laboratory/Organization (Name and Address, Contact Person and Telephone Number)
Aqueous (Catchbasin Water)	TCL VOCs	Trace/Low	EPA 624, DESA SOP C-89	2 Weeks Preliminary Data 3 Weeks Written Results	DESA USEPA Region 2 2890 Woodbridge Ave. Bldg. 209, MS-230 Edison, NJ 08837 Tel.: (732) 906-6886	NA

TBD – To be determine
NA – Not Applicable

QAPP Worksheet #31
Planned Project Assessments Table

Assessment Type	Frequency	Internal or External	Organization Performing Assessment	Person(s) Responsible for Performing Assessment (Title and Organizational Affiliation)	Person(s) Responsible for Responding to Assessment Findings (Title and Organizational Affiliation)	Person(s) Responsible for Identifying and Implementing Corrective Actions (CA) (Title and Organizational Affiliation)	Person(s) Responsible for Monitoring Effectiveness of CA (Title and Organizational Affiliation)
PT	Semiannually	External	NELAC	PT provider	Lab Personnel	Lab Personnel	Lab QA Officer
NELAC	Every two years	External	NELAC	Florida DOH	Lab QA Officer	Lab Personnel	Florida DOH
INTERNAL AUDIT	Monthly	Internally	DESA Lab	Lab QA Officer	Lab Personnel	Lab Personnel	Lab QA Officer

QAPP Worksheet #32

Assessment Findings and Corrective Action Responses

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notified of Findings (Name, Title, Organization)	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response (Name, Title, Org.)	Timeframe for Response
Project Readiness Review	Checklist or logbook entry	RST 2 Site Project Manager, Weston Solutions, Inc.	Immediately to within 24 hours of review	Checklist or logbook entry	RST 2 Site Project Leader	Immediately to within 24 hours of review
Field Observations/ Deviations from Work Plan	Logbook	RST 2 Site Project Manager, Weston Solutions, Inc. and EPA OSC	Immediately to within 24 hours of deviation	Logbook	RST 2 Site Project Manager and EPA OSC	Immediately to within 24 hours of deviation
Proficiency Testing (PT)	Letter with PT failure indicated	Lab QA Officer	30 days after the audit	Investigate the reason for the PT failure	Lab QA Officer	45 days after the CA report
NELAC	Audit Report with Non-conformance to QAPP, SOPs, NELAC+LQMP	Lab Management	30 days after the audit	Investigate and have a corrective action plan for the deficiencies	Florida DOH	30 days after receiving notification
INTERNAL	Audit Report with Non-conformance to QAPP, SOPs, NELAC Regulations	Lab Management	30 days after the audit	Investigate and have a corrective action plan for the deficiencies	Lab QA Officer	45 days after the CA report

QAPP Worksheet #33: QA Management Reports Table

Type of Report	Frequency (daily, weekly, monthly, quarterly, annually, etc.)	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation (Title and Organizational Affiliation)	Report Recipient(s) (Title and Organizational Affiliation)
EPA DESA Laboratory Data (Unvalidated)	As performed	Two weeks from the sampling date	EPA DESA Laboratory	EPA OSC, Smita Sumbaly, and RST 2 Site Project Manager
EPA DESA Laboratory Data (Validated)	As performed	Up to 21 days after receipt of unvalidated data	EPA DESA Laboratory	Site Project Manager, RST 2
On-Site Field Inspection	As performed	7 calendar days after completion of the inspection	Weston Site Project Manager	Site Project Manager, RST 2
Field Change Request	As required per field change	Three days after identification of need for field change	Weston Site Project Manager	EPA OSC
Final Report	As performed	2 weeks after receipt of EPA approval of data package	Weston Site Project Manager	EPA OSC

QAPP Worksheet #34
Verification (Step I) Process Table

Verification Input	Description	Internal/ External	Responsible for Verification (Name, Organization)
Site/field logbooks	Field notes will be prepared daily by the RST 2 Site Project Manager and will be complete, appropriate, legible and pertinent. Upon completion of field work, logbooks will be placed in the project files.	I	RST 2 Site Project Manager
Chain of Custody	Chain-of-custody forms will be verified against the sample cooler they represent. Sample Acceptance Checklist is completed. The OSCAR staff supervisor utilizes the analyses request information and the external COC to review the accuracy and completeness of LIMS log-in entries, as reflected on the LIMS Sample Receipt Form Details can be found in Laboratory Quality Management Plan, SOP G-25	I	OSCAR Personnel DESA LAB
Sampling Trip Reports	STRs will be prepared for each week of field sampling [for which samples are sent to DESA LAB.] Information in the STR will be reviewed against the COC forms, and potential discrepancies will be discussed with field personnel to verify locations, dates, etc.	I	RST 2 Site Project Manager
Laboratory analytical data package	Data packages will be reviewed/verified internally by the laboratory performing the work for completeness and technical accuracy prior to submittal.	E	EPA DESA LAB
Analytical Data Package/ Final Report	The procedures for data review : 1- Data reduction/review by Primary Analyst. 2- Review complete data package (raw data) by independent Peer Reviewer 3- The Sample Project Coordinator reviews the project documentation for completeness followed by a QA review by the QAO 4- Final review by Branch Chief/Section Chief prior to release, this review is to ensure completeness and general compliance with the objectives of the project. This final review typically does not include a review of raw data. Details can be found in Laboratory Quality Management Plan.	I	Primary Analyst, Peer Reviewer, Sample Project Coordinator, Quality Assurance Officer, Section Chief/ Branch Chief. DESA LAB
Final Sample Report	The project data results will be compiled in a sample report for the project. Entries will be reviewed/verified against hardcopy information.	I	RST 2 Site Project Manager

QAPP Worksheet #35: Validation (Steps IIa and IIb) Process Table

Step IIa/IIb	Validation Input	Description	Responsible for Validation (Name, Organization)
IIa	SOPs	Ensure that the sampling methods/procedures outlined in QAPP were followed, and that any deviations were noted/approved.	RST 2 Site Project Manager
IIb	SOPs	Determine potential impacts from noted/approved deviations, in regard to PQOs.	RST 2 Site Project Manager
IIa	Chain of Custody	Chain-of-custody forms will be verified against the sample cooler they represent. Sample Acceptance Checklist is completed. The OSCAR staff supervisor utilizes the analyses request information and the external COC to review the accuracy and completeness of LIMS log-in entries, as reflected on the LIMS Sample Receipt Form Details can be found in Laboratory Quality Management Plan, SOP G-25	OSCAR Personnel DESA LAB
IIa/b	Analytical Data Package/ Final Report	The procedures for data review : 1- Data reduction/review by Primary Analyst. 2- Review complete data package (raw data) by independent Peer Reviewer 3- The Sample Project Coordinator reviews the project documentation for completeness followed by a QA review by the QAO 4- Final review by Branch Chief/Section Chief prior to release, this review is to ensure completeness and general compliance with the objectives of the project. This final review typically does not include a review of raw data. Details can be found in Laboratory Quality Management Plan.	Primary Analyst, Peer Reviewer, Sample Project Coordinator, Quality Assurance Officer, Section Chief/ Branch Chief. DESA LAB
IIb	Field duplicates	Compare results of field duplicate (or replicate) analyses with RPD criteria	EPA DESA LAB

QAPP Worksheet #36: Validation (Steps IIa and IIb) Summary Table

Step IIa/IIb	Matrix	Analytical Group	Concentration Level	Validation Criteria	Data Validator (title and organizational affiliation)
IIa / IIb	Aqueous	TCL VOCs	Trace/Low	Data Validation SOP for Organic Analysis of Trace Concentration under DESA Method C-89 and DESA SOP G-26- Guidence for laboratory Data Review.	DESA Data Validation Personnel, EPA, Region II

QAPP Worksheet #37: Usability Assessment

Summarize the usability assessment process and all procedures, including interim steps and any statistics, equations, and computer algorithms that will be used: Data, whether generated in the field or by the laboratory, are tabulated and reviewed for Precision, Accuracy, Representativeness, Completeness, and Comparability (PARCCS) by the SPM for field data or the data validator for laboratory data. The review of the PARCC Data Quality Indicators (DQI) will compare with the DQO detailed in the site-specific QAPP, the analytical methods used and impact of any qualitative and quantitative trends will be examined to determine if bias exists. A hard copy of field data is maintained in a designated field or site logbook. Laboratory data packages are validated, and final data reports are generated. All documents and logbooks are assigned unique and specific control numbers to allow tracking and management.
Questions about Non-CLP data, as observed during the data review process, are resolved by contacting the respective site personnel and laboratories as appropriate for resolution. All communications are documented in the data validation record with comments as to the resolution to the observed deficiencies.

Where applicable, the following documents will be followed to evaluate data for fitness in decision making: EPA QA/G-4, *Guidance on Systematic Planning using the Data Quality Objectives Process*, EPA/240/B-06/001, February 2006, and EPA QA/G-9R, *Guidance for Data Quality Assessment*, A reviewer's Guide EPA/240/B-06/002, February 2006.

Describe the evaluative procedures used to assess overall measurement error associated with the project:
As delineated in the ***Uniform Federal Policy for Implementing Environmental Quality Systems: Evaluating, Assessing and Documenting Environmental Data Collection and Use Programs Part 1: UFP-QAPP (EPA-505-B-04-900A, March 2005); Part 2A: UFP-QAPP Workbook (EPA-505-B-04-900C, March 2005); Part 2B: Quality Assurance/Quality Control Compendium: Non-Time Critical QA/QC Activities (EPA-505-B-04-900B, March 2005);*** "Graded Approach" will be implemented for data collection activities that are either exploratory or small in nature or where specific decisions cannot be identified, since this guidance indicates that the formal DQO process is not necessary.

The data will be evaluated to determine whether they satisfy the PQO for the project. The validation process determines if the data satisfy the QA criteria. After the data pass the data validation process, comparison results with the PQO is done.

QAPP Worksheet #37: Usability Assessment- (Concluded)

The data will be evaluated to determine whether they satisfy the PQO for the project. The validation process determines if the data satisfy the QA criteria. After the data pass the data validation process, comparison results with the PQO is done. If the TCE contamination is detected in the catchbasin sample further point source investigation may be required followed by additional location sampling.

Identify the personnel responsible for performing the usability assessment: Site Project Management Team, Data Validation Personnel, and EPA, Region II OSC

Describe the documentation that will be generated during usability assessment and how usability assessment results will be presented so that they identify trends, relationships (correlations), and anomalies:

A copy of the most current approved QAPP, including any graphs, maps and text reports developed will be provided to all personnel identified on the distribution list.

Attachment A

Site Location Map

Legend

S/L Site Location

N

0 0.05 0.1 0.2 0.3 0.4 Miles

Weston Solutions, Inc.
Northeast Division

In Association With
Innovative Technical Solutions, Inc.,
Scientific and Environmental Associates, Inc.
and Avatar Environmental, LLC.

Figure 1:
Site Location Map

ALFRED HELLER HEAT TREATING SITE
CLIFTON, NEW JERSEY

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL SUPPORT TEAM 2
CONTRACT # EP-W-06-072

GIS ANALYST:	F. CAMPBELL
EPA OSC:	C. D'ONOFRIO
RST SPM:	S. IQBAL
FILENAME:	SITEMAP.MXD

DATE MODIFIED: 11/23/2009

Attachment B

ERT SOP #2001

Attachment B

ERT SOP #2001

GENERAL FIELD SAMPLING GUIDELINES

SOP#: 2001
DATE: 08/11/94
REV. #: 0.0

1.0 SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to provide general field sampling guidelines that will assist REAC personnel in choosing sampling strategies, location, and frequency for proper assessment of site characteristics. This SOP is applicable to all field activities that involve sampling.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent on site conditions, equipment limitations or limitations imposed by the procedure. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute U.S. EPA endorsement or recommendation for use.

2.0 METHOD SUMMARY

Sampling is the selection of a representative portion of a larger population, universe, or body. Through examination of a sample, the characteristics of the larger body from which the sample was drawn can be inferred. In this manner, sampling can be a valuable tool for determining the presence, type, and extent of contamination by hazardous substances in the environment.

The primary objective of all sampling activities is to characterize a hazardous waste site accurately so that its impact on human health and the environment can be properly evaluated. It is only through sampling and analysis that site hazards can be measured and the job of cleanup and restoration can be accomplished effectively with minimal risk. The sampling itself must be conducted so that every sample collected retains its original physical form and chemical composition. In this way, sample integrity is insured, quality assurance standards are maintained, and the sample can accurately represent the larger body of material under investigation.

The extent to which valid inferences can be drawn from a sample depends on the degree to which the sampling effort conforms to the project's objectives. For example, as few as one sample may produce adequate, technically valid data to address the project's objectives. Meeting the project's objectives requires thorough planning of sampling activities, and implementation of the most appropriate sampling and analytical procedures. These issues will be discussed in this procedure.

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

The amount of sample to be collected, and the proper sample container type (i.e., glass, plastic), chemical preservation, and storage requirements are dependent on the matrix being sampled and the parameter(s) of interest. Sample preservation, containers, handling, and storage for air and waste samples are discussed in the specific SOPs for air and waste sampling techniques.

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

The nature of the object or materials being sampled may be a potential problem to the sampler. If a material is homogeneous, it will generally have a uniform composition throughout. In this case, any sample increment can be considered representative of the material. On the other hand, heterogeneous samples present problems to the sampler because of changes in the material over distance, both laterally and vertically.

Samples of hazardous materials may pose a safety threat to both field and laboratory personnel. Proper health and safety precautions should be implemented when handling this type of sample.

Environmental conditions, weather conditions, or non-target chemicals may cause problems and/or interferences when performing sampling activities or when sampling for a specific parameter. Refer to the specific SOPs for sampling techniques.

5.0 EQUIPMENT/APPARATUS

The equipment/apparatus required to collect samples must be determined on a site specific basis. Due to the wide variety of sampling equipment available, refer to the specific SOPs for sampling techniques which include lists of the equipment/apparatus required for sampling.

6.0 REAGENTS

Reagents may be utilized for preservation of samples and for decontamination of sampling equipment. The preservatives required are specified by the analysis to be performed. Decontamination solutions are specified in ERT SOP #2006, Sampling Equipment Decontamination.

7.0 PROCEDURE

7.1 Types of Samples

In relation to the media to be sampled, two basic types of samples can be considered: the environmental sample and the hazardous sample.

Environmental samples are those collected from streams, ponds, lakes, wells, and are off-site samples that are not expected to be contaminated with hazardous materials. They usually do not require the special handling procedures typically used for concentrated wastes. However, in certain instances, environmental samples can contain elevated concentrations of pollutants and in such cases would have to be handled as hazardous samples.

Hazardous or concentrated samples are those collected from drums, tanks, lagoons, pits, waste piles, fresh spills, or areas previously identified as contaminated, and require special handling procedures because of their potential toxicity or hazard. These samples can be further subdivided based on their degree of hazard; however, care should be taken when handling and shipping any wastes believed to be concentrated regardless of the degree.

The importance of making the distinction between environmental and hazardous samples is two-fold:

(1) Personnel safety requirements: Any sample thought to contain enough hazardous materials to pose a safety threat should be designated as hazardous and handled in a manner which ensures the safety of both field and laboratory personnel.

(2) Transportation requirements: Hazardous samples must be packaged, labeled, and shipped according to the International Air Transport Association (IATA) Dangerous Goods Regulations or Department of Transportation (DOT) regulations and U.S. EPA guidelines.

7.2 Sample Collection Techniques

In general, two basic types of sample collection techniques are recognized, both of which can be used for either environmental or hazardous samples.

Grab Samples

A grab sample is defined as a discrete aliquot representative of a specific location at a given point in time. The sample is collected all at once at one particular point in the sample medium. The representativeness of such samples is defined by the nature of the materials being sampled. In general, as sources vary over time and distance, the representativeness of grab samples will decrease.

Composite Samples

Composites are nondiscrete samples composed of more than one specific aliquot collected at various sampling locations and/or different points in time. Analysis of this type of sample produces an average value and can in certain instances be used as an alternative to analyzing a number of individual grab samples and calculating an average value. It should be noted, however, that compositing can mask problems by diluting isolated concentrations of some hazardous compounds below detection limits.

Compositing is often used for environmental samples and may be used for hazardous samples under certain conditions. For example, compositing of hazardous waste is often performed after compatibility tests have

been completed to determine an average value over a number of different locations (group of drums). This procedure generates data that can be useful by providing an average concentration within a number of units, can serve to keep analytical costs down, and can provide information useful to transporters and waste disposal operations.

For sampling situations involving hazardous wastes, grab sampling techniques are generally preferred because grab sampling minimizes the amount of time sampling personnel must be in contact with the wastes, reduces risks associated with compositing unknowns, and eliminates chemical changes that might occur due to compositing.

7.3 Types of Sampling Strategies

The number of samples that should be collected and analyzed depends on the objective of the investigation. There are three basic sampling strategies: random, systematic, and judgmental sampling.

Random sampling involves collection of samples in a nonsystematic fashion from the entire site or a specific portion of a site. Systematic sampling involves collection of samples based on a grid or a pattern which has been previously established. When judgmental sampling is performed, samples are collected only from the portion(s) of the site most likely to be contaminated. Often, a combination of these strategies is the best approach depending on the type of the suspected/known contamination, the uniformity and size of the site, the level/type of information desired, etc.

7.4 QA Work Plans (QAWP)

A QAWP is required when it becomes evident that a field investigation is necessary. It should be initiated in conjunction with, or immediately following, notification of the field investigation. This plan should be clear and concise and should detail the following basic components, with regard to sampling activities:

- C Objective and purpose of the investigation.
- C Basis upon which data will be evaluated.
- C Information known about the site including location, type and size of the facility, and length of operations/abandonment.
- C Type and volume of contaminated material, contaminants of concern (including concentration), and basis of the information/data.
- C Technical approach including media/matrix to be sampled, sampling equipment to be used, sample equipment decontamination (if necessary), sampling design and rationale, and SOPs or description of the procedure to be implemented.
- C Project management and reporting, schedule, project organization and responsibilities, manpower and cost projections, and required deliverables.
- C QA objectives and protocols including tables summarizing field sampling and QA/QC analysis and objectives.

Note that this list of QAWP components is not all-inclusive and that additional elements may be added or altered depending on the specific requirements of the field investigation. It should also be recognized that although a detailed QAWP is quite important, it may be impractical in some instances. Emergency responses and accidental spills are prime examples of such instances where time might prohibit the development of site-specific QAWPs prior to field activities. In such cases, investigators would have to rely on general guidelines and personal judgment, and the sampling or response plans might simply be a strategy based on preliminary information and finalized on site. In any event, a plan of action should be developed, no matter how concise or informal, to aid investigators in maintaining a logical and consistent order to the implementation of their task.

7.5 Legal Implications

The data derived from sampling activities are often introduced as critical evidence during litigation of a hazardous waste site cleanup. Legal issues in which sampling data are important may include cleanup cost recovery, identification of pollution sources and responsible parties, and technical validation of remedial design methodologies. Because of the potential for involvement in legal actions, strict adherence to technical and administrative SOPs is essential during both the development and implementation of sampling activities.

Technically valid sampling begins with thorough planning and continues through the sample collection and analytical procedures. Administrative requirements involve thorough, accurate

documentation of all sampling activities. Documentation requirements include maintenance of a chain of custody, as well as accurate records of field activities and analytical instructions. Failure to observe these procedures fully and consistently may result in data that are questionable, invalid and non-defensible in court, and the consequent loss of enforcement proceedings.

8.0 CALCULATIONS

Refer to the specific SOPs for any calculations which are associated with sampling techniques.

9.0 QUALITY ASSURANCE/ QUALITY CONTROL

Refer to the specific SOPs for the type and frequency of QA/QC samples to be analyzed, the acceptance criteria for the QA/QC samples, and any other QA/QC activities which are associated with sampling techniques.

10.0 DATA VALIDATION

Refer to the specific SOPs for data validation activities that are associated with sampling techniques.

11.0 HEALTH AND SAFETY

When working with potentially hazardous materials, follow U.S. EPA, OSHA, and corporate health and safety procedures.